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The Influence of the Family on Adolescent Academic Achievement

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The influence of the family on adolescent academic achievement

by

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ABSTRACT

This study investigated the relationship between specific family factors and adolescent academic achievement. Secondary data was used from the Iowa Youth and Family Project data set, a longitudinal project which at inception in 1989 consisted of White families from rural counties of Iowa with married parents, one target 7th grader, and a sibling within four years of the target's age (Family Transitions Project, 2011). Data for this thesis are from 1991, 1992, and 1994. A logistic regression analysis was used to analyze the relationship between parental alcohol use, selected family characteristics, and adolescent academic achievement. Multiple regression analyses were used to further describe the relationship between achievement and the three predictor blocks. In this sample, parental alcohol use did not have a significant relationship with achievement, but income per capita, target sex, and father marital happiness did. Furthermore, these results may have been impacted by the manner in which the data were analyzed (i.e., using the entire spectrum of alcohol use instead of high alcohol use only) and by the manner in which achieving was defined (i.e., a grade point average of 3.00 and above as achieving, and a grade point average below 3.00 as non-achieving). Future research can focus on identifying resiliency factors within families where both high drinking and academic achievement are present.

CHAPTER 1. INTRODUCTION

According to Grant (2000), one in four children under the age of 18 lives in a home in which alcohol use is present (Schroeder & Kelley, 2008). Prior studies demonstrate that parental alcohol use is linked to maladaptive outcomes in children's development, health, behavior, and academic success (Conners, Bradley, Mansell, Liu, Roberts, Burgdorg, & Herrell, 2003). Questions arise regarding the extent to which family factors such as cohesion can lessen this detrimental relationship between parental alcohol use and child outcomes. More specifically, how the link between parental alcohol use and adolescent academic achievement is mediated by family cohesion. The current study addressed these inquiries, among others, which will be discussed further later.

Within America, the education of children is of upmost importance to the citizens of this society. Without a proper education, children will encounter hardships such as illiteracy, unemployment, and shame (James, Jurich, & Estes, 2001). Higher academic achievement, for the purpose of this research, was determined through measurements used to assess adolescent academic functioning (i.e., grade point average).

Numerous factors contribute to a child's level of academic success, one factor being the family. The family unit is considered one of the most influential components of a child's academic achievement due to the fact that the family is the first source of informal education for a child (Sumari, Hussin, & Siraj, 2010). More specifically, parenting styles, discipline techniques, involvement with their children, and the home environment have been shown to affect a child's ability to academically achieve (Sumari et al.). However, what other parental factors influence a child's academic achievement? One consideration is how parental alcohol use impacts a child's academic achievement. As mentioned earlier, the prevalence of parental

alcohol use is relatively high, which may cause concern for America's families (Schroeder & Kelley, 2008). Therefore, considering how prevalent the rate of alcohol use is among families, it is imperative that research be conducted to examine how this parental characteristic can affect the children within the family unit.

Additionally, it is important to know how another family factor, family cohesion, affects the children of society's families. Family cohesion is defined as "the emotional bond that family members have for one another" (Olson & Gorall, 2003, p. 516). Variables for measuring family cohesion include "boundaries, emotional closeness, time, space, friends, coalitions, decision-making, recreation, and interests" (Olson & Gorall, 2003, p. 516). With that in mind, it is important to explore how family cohesion plays a part in the development of family members along with another significant family characteristics—parental alcohol use. More specifically, it is important to focus on the topic of how the link between parental alcohol use and adolescent academic achievement is affected by family cohesion—the central question of this research. Overall, it was hypothesized that parental alcohol use negatively affects adolescent academic achievement. More specifically, it was hypothesized that if one or both parents consume alcohol, their child's academic achievement is lowered, and that this link is mediated by family cohesion.

CHAPTER 2. LITERATURE REVIEW

In the following section, literature related to parental alcohol use and family cohesion is discussed. This description is followed by a discussion of the effects of these variables and other family characteristics (i.e., socioeconomic status, familial religion, parents' marital relationship) on adolescent academic achievement.

Adolescent Academic Achievement

The academic achievement of society's youth is a central focal point for society due to the idea that ensuring an education for a child helps promote a more successful future (e.g., job opportunities, financial compensation) for that individual compared to their counterparts. This importance was reflected within the extensive literature available on the general topic of adolescent academic achievement. For the purposes of this study, a grade point average (GPA) of 3.0 or above was used to define "academic success" (Roderick, Nagaoka & Coca, 2009). According to these researchers, a GPA of 3.00 or above is an indicator of college readiness (Roderick et al., 2009). Overall, research indicates that multiple factors are linked to whether or not an individual will achieve academically.

For instance, researchers state that characteristics of a child's neighborhood are associated with a child's ability to achieve academically. Studies have shown that children who reside in low-income neighborhoods were more likely to perform more poorly in school compared to children who reside in affluent neighborhoods, as seen through achievement scores on standardized tests (Andreias et al., 2010). These neighborhood effects on adolescent academic achievement are expected to become more pronounced within later years of the child's life due to the child having more contact with schools and peers within low-income neighborhoods (Andreias et al.).

Furthermore, the intelligence and personality traits of an individual are linked to academic achievement (Laidra, Pullmann, & Allik, 2007). According to researchers, intelligence was found to be most predictive of how well an individual will achieve academically, as indicated by student GPA. Furthermore, the personality traits of openness, agreeableness, and conscientiousness were positively correlated with GPA, while neuroticism was negatively correlated with this indicator (Laidra et al.). However, when all of predictors were regressed together, intelligence was still the strongest predictor of academic achievement (Laidra et al.).

Also, research by Magnuson and Berger (2009) discussed that family structure is associated with academic achievement. Specifically, children living within single-mother families had more behavior problems and less achievement within school than children living in a home with two biological-parents. Furthermore, transitions such as divorce in the family structure were linked to similar results—more behavior problems and an individual's lack of ability to achieve within the school environment. Explicitly, transitioning to a single-mother family was associated with more behavior issues compared to child residing in two-parent families (Magnuson & Berger).

Parental Alcohol Use

Approximately one in four children under the age of 18 lives in a home in which alcohol use is present (Schroeder & Kelley, 2008). For the purposes of this study, the full spectrum of alcohol involvement was considered (from no consumption to excessive use); this was defined as the level of "alcohol use". As a result, parental "alcohol users" were defined as parents who reported using any amount of alcohol within the family unit, which has the possibility to include those with minimal use to those who are abusing alcohol. Thus,

all parents within the sample who consume any amount of alcohol were defined as “using”; there was no separation between abusing alcohol and those with minimal occasional use.

While parents who abuse alcohol have a significantly negative effect on their children, research showed that any parental use of alcohol was associated with poor adjustment in school for children in relation to “impulse control, attention, and conduct” (Torvik, Rognmo, Ask, Roysamb, & Tams, 2011, p. 8). In particular, maternal drinking was significantly related to these areas of poor adjustment within school, more so than paternal drinking. Furthermore, children whose parents abstained from drinking had fewer “conduct, attention, and academic problems” in school opposed to parents who were considered “light drinkers” (Torvik, Rognmo, Ask, Roysamb, & Tams, 2011, p. 1). Lastly, this study found that adolescents who saw their parents drunk were more likely to be maladjusted in the school setting (Torvik et al.). In terms of examining alcohol consumption, self-reports of alcohol use may not be accurate. Stockwell et al., (2004) reported that the degree of alcohol an individual actually consumes is typically underreported. That is, these individuals underestimate the amount of alcohol they are actually drinking. Thus, given the tendency of individuals to underreport their alcohol consumption and the negative effects of even “light” drinking on children and families, both minimal use and excessive use were utilized within this study (Stockwell et al.).

When it comes to the negative effects of parental alcohol use on children, Olmstead, McWey and Henderson (2010) discussed that fathers who used alcohol were less likely to engage with their children, and this tendency negatively affected their children due to a lack of father-child interaction. Additionally, these researchers found that father alcohol use increased the likelihood of less household and parental responsibility by the father and more

psychological problems for the father (Olmstead et al., 2010). Furthermore, parents demonstrating tolerant ideas related to not only their own alcohol use, but alcohol use in general, were more likely to have adolescents who engaged in excessive drinking and had more alcohol-related problems (Mares et al., 2011). Kelley et al. (2010) attempted to explain this link. These researchers discussed how parental substance use, which is associated with increased inter-parental violence, affects children within the home. The impact of these two factors was studied, and both parental substance use and inter-parental violence negatively affected the development of children within the home (Kelley et al.). Additionally, Conners and colleagues (2003) discussed "biological, developmental, and behavioral problems" associated with maternal substance use. Children in this study were "twice as likely to have asthma, three times as likely to have hearing problems, more likely to receive special instruction services at school, and more likely to have behavioral problems at school (e.g., 10% had been in a serious fight with a teacher) than their counterparts" (Conners et al., p. 2). Overall, it would appear that children whose mothers used substances were at a higher risk of "developing biological, behavioral, and developmental problems" than children whose mothers did not use alcohol (Conners et al., p. 12). Additionally, many of the children whose parents used alcohol were also subject to prenatal drug exposure, which heightens their risk level (Conners et al.).

Family Cohesion

Family cohesion, along with parental alcohol use, is a factor that is important to the family unit, and has the ability to affect family members. Family cohesion, for the purpose of this study, was defined as "the emotional bond that family members have for one another", and was an inclusive term of both parent-child cohesion and mother-father cohesion (Olson

& Gorall, 2003). Leidy, Guerra, and Toro (2010) discussed that family cohesion predicted improvements in a child's problem-solving abilities and their social self-efficacy in Latino immigrant families. Additionally, family cohesion has been linked to better physical, emotional, and educational well-being among children and adolescents, and also lower levels of aggression and depression (Leidy et al.). In fact, the focus group participants within Leidy and colleagues' study stated that they believed family cohesion was important to the family and its well-being (Leidy et al.).

Conner and Rueter (2006) stated that maternal and paternal warmth, an indicator of family cohesion, was related to adolescent suicidality and emotional distress. They stated: "Communicative and warm behaviors by mothers had a negative, direct link with an adolescents' report of suicidality, while warm and communicative behaviors by fathers had a direct negative association with adolescents' reporting of emotional distress" (Conner & Rueter, p. 146). According to King, Stamps, and Hawkins (2010), closeness between parents and their children is important to the well-being of children. Parent and child closeness was associated with better outcomes for children such as fewer internalizing behaviors (i.e., negative behaviors directed toward the self) and fewer externalizing behaviors (i.e., negative behaviors directed outside of the self; King et al., 2010). King and Sobolewski (2010) discussed that a supportive, warm, and close relationship with nonresident fathers was associated with child well-being and positive child development. Furthermore, children who reported that they were close with their fathers who lived outside of the home stated that they were less emotionally distressed, had fewer behavioral and academic problems, acted out less in school, had fewer externalizing problems, and had fewer internalizing problems (King & Sobolewski).

Parental Alcohol Use and Adolescent Academic Achievement

Parental alcohol use is a family factor that can have a direct link to adolescent academic success. Unfortunately, the extant literature focuses primarily on parental alcohol abuse and not specifically on parental use classified at a lower level than abuse. Therefore, this literature review will focus on literature that contains information related to the extreme end of the spectrum of alcohol use—parental alcohol abuse. With that in mind, Zanati-Jeronymo and Carvalho (2005) found that children whose parents had problems with alcoholism were less likely than their counterparts to achieve academically in reading and mathematics. Additionally, Diaz et al. (2008) discussed the predisposition for children of parents who abuse alcohol to fail in school. Children within this study whose parents abused alcohol were at a "nine times higher risk for low school performance, were twice as likely to repeat a grade, and were twice as likely to drop out of school" (Diaz et al., p. 6). Overall, these researchers state that children of parents who abuse alcohol were more likely to have lower cognitive performance, which is directly related to lower academic achievement (Diaz et al.). Lambie and Sias (2005) discussed that the effects of parental alcoholism can be detrimental when it comes to a child's ability to academically succeed. Children of alcoholics were more likely to "have learning disabilities, drop out of school, practice truancy, exhibit disruptive behavior in the classroom, and repeat grades" (Lambie & Sias, p. 269). Additionally, these children were more likely to demonstrate lower intelligence tests scores, lower reading scores, lower math scores, and lower verbal scores compared to their counterparts. Furthermore, these children were more likely to think concretely and not abstractly into their adult years, and these children are less likely to complete their

homework, and achieve the necessary rest for school due to their disorganized home life caused by alcohol abuse (Lambie & Sias).

Family Cohesion and Adolescent Academic Achievement

The emotional closeness of a family also has the ability to affect how well a child can succeed academically within their educational careers. Jeynes (2007) examined the importance of parental involvement in relation to a child's ability to "academically succeed", and found that "parental involvement had a positive impact on a child's academic achievement across diverse populations of children" (p. 84). Parental expectations and behaviors had more of an impact on academic achievement than did aspects of parental involvement (Jeynes, 2007). Thomas, Krampe, and Newton (2008) discussed the importance of father involvement in relation to a child's ability to academically succeed. The presence of a father within the household was associated with greater academic achievement, as well as greater self-esteem and friendship stability. Overall, it would appear that the presence and involvement of a father is associated with positive outcomes for their children (Thomas et al.). Furthermore, Fruh, Fulkerson, Kendrick, and Clanton (2011) discussed the impact of the family meal upon a child's academic success. A family who eats together positively impacts a child's ability to intellectually develop and to increase vocabulary and reading skills. This increase in vocabulary and reading skills is believed to be due to conversations during family meals that help to promote an increase in a child's vocabulary, which in turn aids in the development of their reading skills. Compared with their counterparts, children whose families ate together exhibited better grades, which are due to factors such as greater cognitive development, and can be seen from early childhood to the teens (Fruh et al.).

In addition to the effects on adolescent academic achievement of parental alcohol use and family cohesion, the literature points to other family characteristics that impact academic achievement.

Socioeconomic Status and Adolescent Academic Achievement

When examining academic achievement, it is imperative that socioeconomic status (SES) is included due to the fact that SES can have a direct effect on this factor, and according to Demi and Lewis (2011), the effects of SES on the academic outcome and future life course pathways is significant. Children within low-income families are less likely to earn passing grades within their middle school years than children within middle and upper-income families (Demi & Lewis). Additionally, children within low-income situations are less likely to "attend higher quality schools (schools with larger budgets, better quality teachers, and within high-income neighborhoods), and continue their education into college" (Demi & Lewis, p. 247). Overall, Demi and Lewis conclude that a child's socioeconomic status is strongly correlated with that individual's academic achievement, with evidence that children within higher SES categories complete more years of education. Furthermore, a family's SES had an indirect impact on a child's academic achievement through the resources provided at home that are necessary for a child to achieve in school (food, clothes, school supplies; Sirin, 2005). The socioeconomic status of a family also helps determine what school a child will attend as well as the kind of classroom environment that was available to that child (Sirin).

Familial Religion and Adolescent Academic Achievement

A second family characteristic, religiosity, is also related to how well an adolescent is able to achieve academically. For instance, McCullough and Willoughby (2009) found that

religiousness within a family is associated with higher self-regulation and self-control within an individual, and are important indicators of academic achievement. More specifically, students with higher self-control are more psychologically adjusted, have better relationships, and perform better academically. Furthermore, self-control is associated with better academic performance and higher intelligence (McCullough & Willoughby). Additionally, religiousness within a family can promote the ability for an individual to delay gratification which has been linked to better future social adjustment and academic achievement within school (McCullough & Willoughby).

Likewise, King and Furrow (2004) discuss that both academic achievement and the ability to be socially competent is associated with religious involvement. Overall, these researchers found that coming from a religious family is related to an adolescent's healthy development, such as the ability to be successful in school. These individuals are able to connect better with the school environment, engage better with their academic studies, and achieve higher than their counterparts. Additionally, these individuals are more committed to their schooling, which is strongly correlated with the ability of one to achieve higher grades (King & Furrow).

Martial Happiness and Adolescent Academic Achievement

Another prominent factor of the family that affects adolescent achievement is the degree of marital happiness. For instance, divorce was strongly associated with a child's inability to achieve higher within school (Potter, 2010). Children who come from families in which conflict and divorce are prominent typically do worse in school than children who come from families without divorce. Specifically, Potter found that the divorce of a child's

parents diminishes a child's well-being, which then negatively affects that child's ability to perform well in school.

Additionally, interpersonal conflict was correlated with academic achievement. More specifically, conflict between parents was related to a child not achieving in school, with youth self-blame being a significant mediator of this relationship (Ghazarian & Buehler, 2008). These adolescents are more likely to experience stress related to this interpersonal conflict which is one factor that decreases their potential to achieve academically. Furthermore, these researchers discussed that children who experienced interpersonal conflict during these developmental years were more likely to experience difficulties with several domains of their lives in the future. However, it was found by Ghazarian and Buehler (2008) that adolescents who experienced high maternal acceptance and monitoring were less likely to experience self-blame and lower academic achievement from parental interpersonal conflict.

Rationale for the Current Study

Even though much research focuses on adolescent academic achievement, parental alcohol abuse, and family cohesion, no research was found that relates to the main topic at hand (how the link between parental alcohol use and adolescent academic achievement is mediated by family cohesion). Additionally, there was little literature focusing on how parental alcohol use (including alcohol abuse) can affect adolescent academic achievement. That is, a review of the literature revealed no extant research that addresses the question: "How is the link between parental alcohol use and adolescent academic achievement affected by family cohesion?" and found sparse literature which did not label parents as "alcoholics" when focusing on how drinking can affect adolescent academic achievement. This is

important because the present study did not look solely at the extremes of alcohol use within parents (alcohol abuse), and instead it focused on general parental use of alcohol (i.e., any alcohol use, including alcohol abuse).

Overall, there are many potential implications of the findings of this study. For instance, there are therapeutic implications related to how the link between parental alcohol use and adolescent academic success is affected by family cohesion. With the knowledge gathered from a study on this topic, a family therapist will be able to help families in which alcohol use is prominent. More specifically, this knowledge can help therapists potentially gain more information regarding how parental alcohol is related to adolescent academic success, and how family cohesion can possibly mediate this association. Therefore, research is needed to answer this question and expand the knowledge related to the aforementioned variables. Additionally, the general public would benefit from knowing whether or not the use of any amount of alcohol by parents is linked to academic success as well. Considering there is little to no literature on this topic, it is important that research be conducted.

Research Questions and Hypotheses

Based on prior research and the importance of the family within society, the researcher presents the following two research questions, hypotheses, and theoretical rationale for a research study on the discussed variables.

First research question: What familial predictors affect adolescent academic achievement in a negative or positive manner? The predictors that were examined were contained within three blocks: parental drinking (mother, father, both, neither), family characteristics (family income per capita and family religion), and family relationships (family cohesion and marital happiness). Within this study, parental drinking and family

cohesion were of the highest importance for the research, but it was also imperative that other familial factors be considered when discussing influences on adolescent academic success. Table 1 displays these predictor blocks below. Prior literature supported the hypothesis that parental alcohol use of any extent has an effect on adolescent academic achievement, and that this effect is negative (Zanati-Jeronymo & Carvalho, 2005). That is, greater parental alcohol use is associated with a lower level of academic achievement of children within the family. Additionally, prior research states that factors such as family characteristics and family relationships are associated with how well a child can succeed academically (Demi & Lewis, 2011; Ghazarian & Buehler, 2008; King & Furrow, 2004; McCullough & Willoughby, 2009; Potter, 2010; Sims, 2005).

Table 1

Variables Predicting Adolescent Academic Achievement

Predictor Block	Predictor Variables
Parental Drinking	Mother drinking, father drinking, neither drinking, both drinking
Family Characteristics	Socioeconomic status and family religion
Family Relationships	Family cohesion and marital happiness

Second research question: Is the potential link between parental alcohol use and adolescent academic achievement mediated by family cohesion? Based on the literature, it was hypothesized that family cohesion would lessen the association between parental alcohol use and adolescent academic achievement. Specifically, that higher family cohesion would cause the link between parental alcohol use and adolescent academic achievement to be lower such that parental alcohol use would not negatively affect adolescent academic success as extensively if higher family cohesion is present. This research question and hypothesis

was dependent on the research conducted for the first research question. Thus, if the researchers found within the first analysis that family cohesion had no effect or was not significant with adolescent academic achievement, then other family factors within the family characteristics or the family relationships predictor blocks were used. Furthermore, if alcohol use was not a significant predictor of academic achievement, additional analysis of this relationship would not be warranted.

Theory Rationale

Overall, the theory that best fits this area of research is Family Systems Theory. Family Systems Theory focuses on the idea that family members affect one another in both behavior and thinking processes (White & Klein, 2008). That is, what one family member does within the system will affect another family member and vice versa. For instance, this can be applied to the research of the link between parental alcohol use and adolescent academic achievement. If a parent is using alcohol, this could potentially negatively impact their child's academic achievement. In turn, decreased adolescent academic achievement shown by the child can negatively affect the parent because the parent may feel responsible for this happening and therefore may increase the parent's use of alcohol. However, even though Family Systems Theory takes a bi-directional stance on how family members can affect one another, this current study was directional in nature, with the focus being on how the adolescent is affected by the family and not the other way around. A further rationale for this directionality will be discussed later.

In the current study, the amount of family cohesion, which in itself is based on mutual causality, can mediate the negative connection between parental alcohol use and academic achievement (White & Klein, 2008). For instance, if a father does not communicate

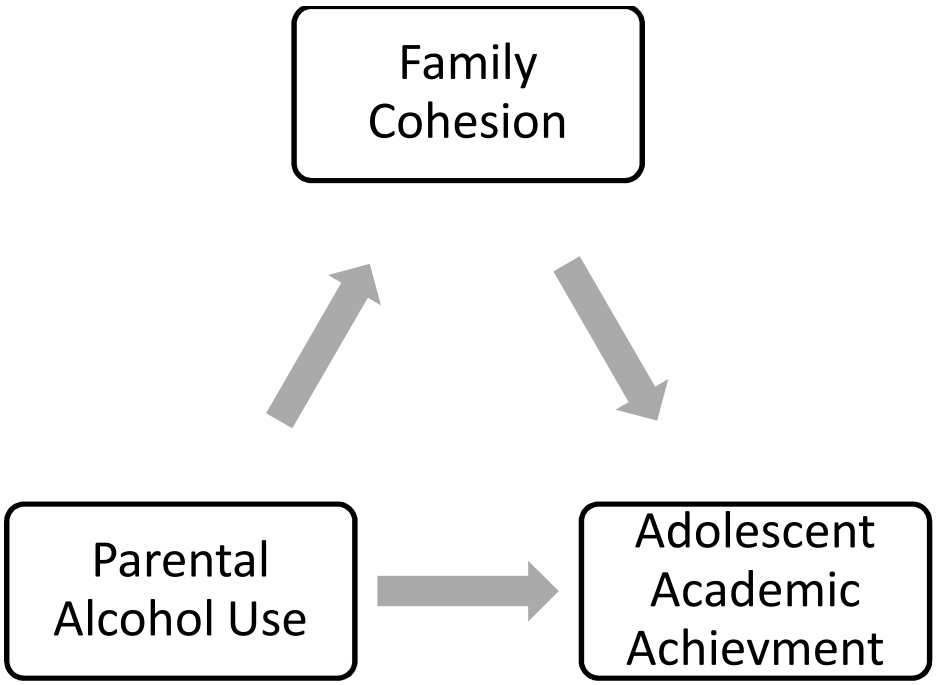
fondness to his daughter, the daughter is less likely to communicate fondness to her father. Therefore, the daughter and the father will not build a sense of cohesion with each other due to both of their lack of fondness communication. Consequently, this will cause the daughter to perceive her relationship with her father, and more than likely her family, as less than close, which will cause less mediation between the parental alcohol use and adolescent academic achievement (White & Klein).

Two tenets within the Family Systems Theory are particularly relevant to examining how the link between parental alcohol use and adolescent academic achievement is affected by family cohesion (White & Klein, 2008). The two relevant tenets of the theory are the assumption of connectedness and the concept of subsystems. Connectedness states that all parts of the system, or family, are interconnected—that all parts of the system (including subsystems) affect one another and can cause issues within the family system (White & Klein).

First, as shown in Figure 1, this assumption of connectedness will aid in the explanation of how one part of the system, such as the father/mother dyad, will affect their children through their alcohol use. Additionally, these assumptions aid in the explanation of how the degree of family cohesion can affect this link between the father/mother dyad and the adolescent. For example, if a member of the father/mother dyad is an alcohol user, then that subsystem will affect other family members' perception of family cohesion by potentially causing other family members (i.e., the family's adolescent) to believe that their family is not close because the alcohol-using parent does not care for the family member as much as needed (White & Klein, 2008). This lack of perceived family cohesion will in no way mediate the link between the parental alcohol use and adolescent academic achievement,

which in turn will cause a drop in the adolescent's academic success. Second, the concept of subsystems relates to the assumption of connectedness because it is the subsystems that are connected within the system and affect how the family member will view their family cohesion (White & Klein). Therefore, the research question regarding how the link between parental alcohol use and adolescent academic achievement is affected by family cohesion fits well into the Family Systems Theory of thinking.

Figure 1. *Theoretical Model Utilizing a Family Systems Perspective*.



CHAPTER 3. METHOD

Methodological Approach

This study used data from the Iowa Youth and Families Project (IYFP) and the Family Transitions Project (FTP; Family Transitions Project, 2011). The IYFP is a longitudinal study of youth and their parents which continued to the subsequent Family Transitions Project (FTP). The present study focused on the third and fourth waves of the IYFP data set and the first wave of the FTP data set because of the research's focus on adolescent achievement as the outcome variable.

The Iowa Youth and Families Project began in response to the economic farm crisis that affected rural areas in Iowa during the 1980s, and lasted from 1989 to 1993 (Family Transitions Project, 2011). Overall, this study contributed greatly to the area of family understanding within society with a focus on "economic troubles, marital relationships, human development, and the intergenerational transmission of factors from one generation to the next" (Family Transitions Project).

In general, the purpose of the IYFP was to "examine the processes involved in the transition from childhood to adolescence, as well as to understand the broader outcomes due to stress created by economic hardship" (Family Transitions Project, 2011). Data for IYFP were gathered via in-home visits and telephone interviews. During in-home visits, participants completed questionnaires and engaged in videotaped discussions. They also completed "homework" (i.e., questionnaires) left with them between visits. Details of the study are available in Conger and Elder (1994) and Conger (2004).

Sample

In 1989, the Iowa Youth and Families Project began research with 451 Iowan families from 8 rural counties (Family Transitions Project, 2011). All participants were White, which reflected the greater Iowa population at the time. Per the original study inclusion criteria, these families included a target seventh grade child, his or her two biological and married parents, and a sibling within four years of the target child's age. The current research context further required that families were intact marital unions. The rational for this inclusion criterion was that families of already divorced parents may have less cohesion than families in which divorce was not present. Due to this assumption, single parent families were extracted from the data set; divorced or remarried families were not used. The sample reduction to 330 families for the present analyses will be discussed more in the "data management" section.

Data for IYFP were collected yearly beginning in 1989. Each participating family was visited twice at their home each year of assessment, except when the target children were in 11th grade—this interview was conducted via a telephone call (Conger, 2004). The FTP began in 1994.

The current analyses focused on the years 1991 through 1994 (excluding 1993) while the target children were in high school, an important time in a child's education. For the current study, at time one, the target children were age 14, and in grade 9, at time two, these target youth were age 17 and in grade 12. These years were selected as most relevant to the research questions as the adolescents were just entering high school and parental alcohol use and family cohesion were likely very salient. The final year of high school was chosen as a culmination of the adolescent's academic standing. Overall, this four year time period

encompassed by the three data collection points was hypothesized to adequately assess the influence of parental alcohol use on adolescent academic achievement.

Data Collection Procedure

During the first visit, each of the four family members completed a set of questionnaires that related to a specific domain of study such as family processes or family interactions. On average, it took about two hours to complete the first in-home visit (Conger, 2004). Between the first and second in-home visits, family members participating in the study completed questionnaires left with them by the first interviewer. Each family member was instructed to place his or her completed questionnaire in an envelope, seal it, and give it to the interviewer at the time of the second visit (Conger, 2004). The second visit typically occurred within one or two weeks after the first visit and consisted of another questionnaire and structured videotaped interactions. The second visit lasted approximately two hours (Conger, 2004). The researcher for the present secondary analysis received International Review Board (IRB) permission to examine these secondary data, and a copy of this permission can be seen in Appendix A.

Measures

The following section will focus on the measures that were used to determine parental alcohol use, adolescent academic achievement, family cohesion, religiosity, marital happiness and satisfaction, as well as income per capita within the IYFP sample. Table 2 illustrates the variables and time points that were utilized for this study. As discussed earlier, this research took a directional and not a bi-directional approach for analyzing the data. That is, even though Family Systems Theory proponents consider family relationships with a bi-directional lens that focuses on interdependence, the aims of this study focused on how the

family can affect the adolescent's academic achievement. Therefore, it was counterintuitive to focus on how adolescent academic achievement would affect parental alcohol use and family cohesion—this was not the main focus of the study.

Table 2

Study Measures

Variable	Measure	Answering Participant	Time
Parental Alcohol Use	Substance Use Scale	Mother and Father	1991
Adolescent Academic Achievement	Grade point average (GPA)	Target Adolescent	1994
Family Cohesion	Closeness to Parents Scale	Target Adolescent	1992
Religiosity	Religiosity Scale	Mother, Father, Target	1992
Marital Happiness and Satisfaction	Marital Happiness and Satisfaction Scale	Mother and Father	1992
Income per Capita	Income Per Capita Measure	Family Unit	1992

Parental alcohol use. Parental alcohol use was measured by the Substance Use Scale (Conger, 1988). These measurements were used to determine if a parent is drinking, and how often. The original scale consisted of eight items, but the current researcher utilized three of three of the scale's items. Both the mother and the father were asked about their behaviors related to using alcohol. Examples of these questions included: "In the past month, have you had any alcoholic drinks?", "How many days this past month did you have only two or three alcoholic drinks?" and, "How many days this past month did you have four or more drinks?" (Conger, 1988). The responses for these questions were either "yes/no" or required the participant to fill in an answer ("x" amount of days for "x" amount of drinks") (Conger, 1988).

Many researchers have used measures similar to this scale in order to assess how parental alcohol use has an effect on the family. For instance, Torvik et al. (2011) used a similar scale to measure the relationship between parental alcohol use and adolescent school adjustment in the general population (Torvik et al., 2011). Mothers and fathers reported their own drinking behavior through an alcohol screening process that assessed whether the individuals were abstaining from alcohol, how many days they usually drank alcohol during a one month period if applicable, and how much the individuals drank, if applicable (Torvik et al., 2011). For the current study, the scale measuring parental alcohol use consisted of parental responses to three alcohol use items on an scale with eight items. Analysis of the parental alcohol scale by the current research yielded a reliability of 0.62 (Cronbach's alpha) for fathers and a reliability of 0.65 (Cronbach's alpha) for mothers. No reliability score (Cronbach's alpha) for this scale is available from past researchers. A copy of this measure can be found in Appendix B. Furthermore, a description of the variable statistics of this measure can be found in Appendix C. See Table 3 for descriptive information regarding both mother and father total drinks over a month period, as well as total days drinking over a one-month.

Table 3

Description of Mother and Father Drinking (N = 330 couples)

Participant	Total Drinks	Total Days Drinking
Father	Minimum: 0 drinks Maximum: 120 Mean: 14.64	Minimum: 0 days Maximum: 31 days Mean: 5.84
Mother	Minimum: 0 drinks Maximum: 120 drinks Mean: 7.38	Minimum: 0 days Maximum: 30 days Mean: 2.58

Note: Total Drinks and Total Days Drinking were assessed over a one-month period.

Adolescent academic achievement. Adolescent academic achievement was measured by the child's self-reported grade point average (GPA) (Conger, 1988). The question asked was: "Which is the closest to your grade point average?" (see Appendix D). This response was answered on a Likert scale with a range of numbers (1 to 11) to indicate the child's grade point average (Conger, 1988). Other researchers have used measures similar to this scale in order to assess the academic achievement of an adolescent. For instance, an adolescent's senior year GPA was used in order to assess the relationship between academic achievement and involved or hostile parental styles (Melby & Conger, 1996). Furthermore, researchers have utilized a self-report of an adolescent's GPA to discover the relationship between family socioeconomic characteristics and the later educational achievement of adolescents within the family (Melby, Conger, Fang, Wickrama, Conger, 2008). No reliability score (Cronbach's alpha) is available for GPA for the present study due to only one question being used to assess GPA.

In order to reflect those who were and were not achieving according to researcher's definition of academic achievement, GPA was dichotomized (i.e., 0 = not achieving, 1 = achieving). Achievement, within the current study, was defined as a GPA above 3.00, and non-achievement was defined as a GPA below 3.00. A description of the variable statistics of this measure can be found in Appendix E.

Family cohesion. The Closeness to Parents Scale (Kessler, 1989) was used to assess the target adolescent's self-report of closeness to their mother and their father at the time of the report (see Appendix F). The scale consists of 11 items, five of which were reverse scored. Items were averaged to create a total score for closeness to mother and total score for closeness to father. Examples of questions used within this measurement are: "How often

does your mother/father make you feel he/she is there for you when you really need her/him?" "How often does your mother/father keep her/his promises to you?", and "How often does your mother/father understand the way you feel about things?" The responses ranged from, (1) "always" to (5) "never". The measure showed higher inter-rater reliability, as indicated by Rook (1984). According to Rook (1984), the reliability of the target adolescent's response for his/her closeness to their mother was 0.90 (Cronbach's alpha), and the reliability of the target adolescent's response for his/her closeness to their father was 0.91 (Cronbach's alpha). Furthermore, according to the current research, the reliability of the target adolescent's response for his/her closeness to their mother was 0.91 (Cronbach's alpha), and the reliability of the target adolescent's response for his/her closeness to their father was 0.91 (Cronbach's alpha). A description of the variable statistics of this measure within the current sample can be found in Appendix G.

Religiosity. Self-reported religiosity of the target adolescent, mother and father was assessed via a single item which asked respondents to indicate the importance of their "religious or spiritual beliefs in your day-to-day life?" (Appendix H; Conger, 1993). According to the current research, the reliability mother, father and target response to religiosity was 0.62 (Cronbach's alpha), when all three responses were combined into one scale. The responses ranged from one to four, with (1) as "very important" and (4) as "not at all important". A description of the variable statistics of this measure can be found in Appendix I.

Marital happiness and satisfaction. To assess father and mother marital happiness and satisfaction, the Marital Quality Scale was used (Conger, 1988). This scaled consists of two items, one of which was reverse scored. The items (happiness and satisfaction) were

analyzed separately for mothers and fathers. Questions asked for both mothers and fathers included: “How happy are you, all things considered, with your marital relationship?” and “All in all, how satisfied are you with your marriage?” No reliability score (Cronbach’s alpha) is available due to only one question used for this study in relation to each marital happiness and marital satisfaction. However, the current researcher found that mother and father marital happiness was significantly correlated at the $p = .01$ level, $p = .000$, and mother and father marital satisfaction were significantly correlated at the $p = .01$ level, $p = .000$. A copy of the measure can be found in Appendix J and, a description of the variable statistics of this measure can be found in Appendix K.

Income per capita. To assess family socioeconomic status, income per capita was utilized for the current study. This variable included “parental wages, salaries, and other sources of income (e.g., self-employment income, farm net income, and supplemental security income); all sources of income are summed and then divided by the number of household members” (Conger & Elder, 1994; Conger, Ebert-Wallace, Sun, Simons, McLoyd, & Brody, 2002; Conger, Ge, Elder, Lorenz, & Simmons, 1994; Spilman & Peng, 2009). There is much literature that uses this specific variable to look at family dynamics. For instance, Conger et al. (2002) used income per capita in a study of economic pressure among African American families. Furthermore, in order to assess the relationship between parental life events and adolescent depressed mood, income per capita was used as a control variable (Ge, Conger, Lorenz, & Simons, 1994). No reliability score (Cronbach’s alpha) is available for this study due to only one question being used to assess income per capita. A description of the variable statistics of this measure can be found in Appendix L.

Data Management

Sample selection. Due to the selection criteria of the study, 20 families were deleted from the data set. The researcher deleted these families due to divorce, separation, or remarriage within the families during the period being studied in the present analyses. This was done to help ensure that one of the central variables in the study, family cohesion, was not already affected by dissolution of one major relationship within the family unit, the marriage. After preliminary analyses, the researcher discovered that four families across the waves used in this study had a missing value within father religiosity, father marital happiness, father marital satisfaction, or income per capita. Due to the inability for the researcher to make an informed decision as to how to replace these single item missing values, these four families were omitted from analyses as well.

Furthermore, it should be noted that the researcher began with 420 families at the beginning of the study, and ended with a sample of 330 families for analyses. Even though it is hopeful by most researchers that the entire sample would be used within analyses, this was not the position of this particular study. Overall, this was due to both the deletion of families described above (i.e., divorced, remarried, separated families), as well as attrition of families over the waves used. It is typical within a longitudinal study that families would drop out over time. This is due to deaths of participants, loss of contact with families, and lack of interest by participants. To determine whether or not any discernible differences could be found between the included and not included families, a series of *t*-tests were conducted. See Table 4 for results.

Table 4

Group Differences in Family Characteristics between Included (N = 330) and Not Included (N = 90) Families

Family Characteristic	Equal Variances T-statistic	Significance
Mother Total Drinks	1.12	.26
Father Total Drinks	.54	.59
Mother Days Drinking	.83	.41
Father Days Drinking	.01	.99
Non-dichotomized GPA	.51	.61
Father Marital Happiness	.56	.58
Father Marital Satisfaction	.01	.99
Mother Marital Happiness	.51	.61
Mother Marital Satisfaction	.01	.99

Note: Levene's test for equality indicated that the variances do not differ significantly from one another ($p > .05$).

Overall, these *t*-tests indicated that there was no significant differences between the two groups of participants (those included and those not included in the study), $p > .05$.

See Table 5 for the demographic information of the families used within this research. Information regarding the age, sex, years of education, and income per capita for families was explored. Both the averages and ranges of these factors were reported.

Table 5

Demographic Information of Participants (N = 330 families)

Participant	Mean Age (range)	Mean Education (range)	Mean Income Per Capita (range)
Fathers	42.06 (33-70)	13.62 years (7-20)	$9170.01 (-$39250.00 to $44957.25)
Mothers	40.08 (31-55)	13.58 years (9-19)	
Targets	14.56 (13-16)	8.98 years (8-9)	

Missingness and recoding. Within this study, multiple variables were recoded for a variety of reasons, but for the same purpose: to improve the data set for analyzing and maximize the number of participants.

Within Wave C, the variables in the Parental Alcohol Use scale were recoded to account for missingness. That is, values of "9" or "99" which were labeled in the data set as a missing value were recoded to actually reflect this. Additionally, the variables that correspond with numbers of days during the month drinking a certain number of drinks were recoded from missing values to zero values if the participant answered "no" to the screening question: "In the past month, have you had any alcoholic drinks, such as beer, wine, liquor, etc.?" The researcher also discovered through preliminary analyses that some respondents had answered the question regarding days they drank over the month in a manner resulting in answers of 32+ days of drinking over a one-month period. Three researchers conferred and

came to a consensus as to participant intent, and replaced these seemingly incorrect values with values that were logical (below 32 days a month drinking). When making these decisions, researchers erred on the conservative side (e.g., 2-3 drinks per day was estimated as 2 drinks per day).

Furthermore, Wave D variables within the Closeness to Mother/Father scale were recoded to correct missing data (changing a “9” or “99” value to a system missing value); these values were then recoded into one variable for each mother and each father that averaged all questions within the measure (a total mother score for closeness and a total father score for closeness). The variables measuring grade point average, socioeconomic status, marital happiness, and religiosity were also recoded to account for missing within Waves D and F.

CHAPTER 4. RESULTS

SPSS 19.0 (SPSS for Windows, 2001) was used for all analyses and a significance level of .05 was adopted. First, analyses were conducted examining the correlation between the independent and dependent variables. See Table 6 for correlational relationships.

As expected, there was a significant relationship between parental alcohol use (mother total drinks) and dichotomized GPA, and indicator of adolescent academic achievement (non-achieving below 3.00 GPA, achieving above 3.00 GPA), $r = .11$, $p < .05$. There was also a significant relationship between GPA and marital happiness for both fathers ($r = .14$, $p < .05$) and mothers ($r = .12$, $p < .05$). In addition, GPA was positively related to income per capita ($r = .18$, $p < .01$).

Table 6

Correlation between Adolescent Academic Achievement and Predictor Variables

Independent Variables	Dependent Variable Dichotomized Adolescent Academic Achievement (GPA)
Parental Alcohol Use	
1. Total Drinks	1. Father: .05, Mother: .11*
2. Total Days Drinking	2. Father: .01, Mother: .08
Family Cohesion	
1. Target Reported Mother Closeness	1. .06
2. Target Reported Father Closeness	2. .09
Marital Happiness	
1. Mother and Father Reported Marital Happiness	1. Father: .14*, Mother: .12*
2. Mother and Father Reported Marital Satisfaction	2. Father: -.11, Mother: -.10
Religiosity	
1. Mother reported	1. -.02
2. Father reported	2. -.02
3. Target reported	3. -.03
Family Socioeconomic Status	
1. Income Per Capita	1. .18**

Note: ** Correlation is significant at the 0.01 level. * Correlation is significant at the 0.05 level.

Research Question One Results

The next analysis addressed research question one, which was the identification of familial predictors affecting adolescent academic achievement. A logistic regression was conducted to examine the relative utility of family variables within three predictor blocks in predicting adolescents' achievement status (i.e., low or high achiever based on GPA). The use of a logistic regression analysis is an important tool used to analyze relationships between several independent variables and a dichotomized dependent variable. Within the dichotomized GPA variable, 0 indicates that an adolescent was not achieving (below a 3.00 GPA), and a 1 indicates that the adolescent was achieving academically (a GPA above 3.00). The three categories of predictors included: (a) family characteristics (income per capita and family religiosity), (b) family relationships (family cohesion, marital happiness, and marital satisfaction), and (c) parental drinking.

Within this analysis, the researcher controlled for variables such as age of parents, sex of child, and family socioeconomic status as indicated by income per capita. After conducting the logistic regression, it was important for the researcher to look at the odds ratio in order to determine if the predictors did, in fact, have an effect on whether or not a target was academically successful. An odds ratio with a confidence interval above zero indicated the utility of that variable in predicting achievement status. Table 7 describes the intercept, standard error, significance level, Wald statistic, and odds ratio of all variables within this study, and how these values changed as each predictor block was added into the analysis.

Table 7

Summary of Logistic Regression Analysis Using Family Demographics to Predict Academic Achievement

Variable	B	SE	Significance	Wald Statistic	Exp(B)	$\chi 2(4)$
Income Per Capita	.06	.02	.01**	8.45	1.10	25.97***
Father Age	-.02	.04	.62	.25	.98	
Mother Age	.05	.05	.33	.95	1.10	
Target Sex	.91	.25	.00 ***	12.88	.40	

Note: Target sex indicates female (0) and male (1). B = coefficient; SE = standard error; Exp(B) = odds ratio.
** $p < .01$. ***$p < .001$.

For predictor block one which contained family demographic variables, income per capita demonstrated a significant relationship with academic achievement, with an odds ratio of 1.1. Furthermore, target sex had a significant relationship with adolescent academic achievement, with an odds ratio of .40. On the other hand, father and mother age were not significant within this block.

Table 8 contains the results of a logistic regression for both demographic variables of the family as well as religiosity of father, mother and target as predictors of adolescent academic achievement (see Table 8)

Table 8

Summary of Logistic Regression Analysis Using Family Demographics and Religiosity to Predict Academic Achievement

Variable	B	SE	Significance	Wald Statistic	Exp(B)	$\chi 2(7)$
Income Per Capita	.06	.02	.01**	8.64	1.07	26.68***
Father Age	-.02	.04	.61	.25	.98	
Mother Age	.05	.05	.34	.89	1.05	
Target Sex	-.90	.26	.00***	12.56	.41	
Father Religiosity	-.09	.17	.57	.32	.91	
Mother Religiosity	-.02	.21	.94	.01	.98	
Target Religiosity	-.05	.16	.77	.08	.94	

Note: Target sex indicates female (0) and male (1). B = coefficient; SE = standard error; Exp(B) = odds ratio.
** $p < .01$. *** $p < .001$.

As shown in Table 8, income again had a significant relationship, and resulted in an odds ratio of 1.07. Target sex also had a significant relationship with adolescent achievement, and an odds ratio of .41. Both of these variables (if the target sex is female) would result in an increase of adolescent academic achievement. These results have become expected by the researcher due to past predictor blocks. However, the addition of mother, father, and target religiosity did not significantly add to the model, and the increase in these variables would decrease adolescent academic achievement.

Table 9 summarizes the output of a logistic regression looking of family demographic information, religiosity, and the added variables marital relationships as predictors of adolescent academic achievement within this block. Within predictor block three, as shown in Table 9, income per capita was found to be significant, with an odds ratio of 1.06, similar to previous predictor blocks. Target sex was also significant, with an odds ratio of .40, similar to previous predictor blocks. These results have not differed from previous predictor blocks, and would be expected within the analyses.

Additionally, a marginal significance was seen within father marital happiness, with an odds ratio of 1.25($p < .10$). In general, father marital happiness is a trend within these analyses. Overall, as these variables increase (if target sex is female), the likelihood of adolescent academic achievement also increases. The data would indicate that if the target was male they are less likely to achieve than if they are female. No significant relationship was seen between father age, mother age, target religiosity, mother religiosity, father religiosity, father marital satisfaction, mother marital happiness, mother satisfaction and adolescent academic achievement. Furthermore, these variables did not add to this block. See Table 9 for these results.

Table 9

Summary of Logistic Regression Analysis Using Family Demographics, Religiosity, Closeness, and Marital Relationships to Predict Academic Achievement

Variable	B	SE	Significance	Wald statistic	Exp(B)	$\chi 2(13)$
Income Per Capita	.06	.02	.01**	7.48	1.06	34.99***
Father Age	-.03	.04	.55	.36	.97	
Mother Age	.06	.06	.28	1.16	1.06	
Target Sex	-.91	.26	.00***	12.13	.40	
Father Religiosity	-.06	.17	.73	.12	.94	
Mother Religiosity	-.03	.21	.89	.02	.97	
Target Religiosity	-.06	.17	.71	.14	.94	
Mother Closeness	.01	.25	.98	.01	1.01	
Father Closeness	.09	.23	.69	.15	1.09	
Father Marital Happiness	.21	.12	.07	3.39	1.25	
Father Marital Satisfaction	.01	.19	.96	.01	1.01	
Mother Marital Happiness	.15	.15	.35	.87	1.16	
Mother Marital Satisfaction	-.01	.22	.99	.00	.99	

Note: Target sex indicates female (0) and male (1). B = coefficient; SE = standard error; Exp(B) = odds ratio.
** $p < .01$. ***$p < .001$.

Lastly, Table 10 illustrates the logistic regression for family demographics, religiosity, closeness, marital relationships, parental drinking and adolescent achievement.

Table 10

Summary of Logistic Regression Analysis Using Family Demographics, Religiosity, Closeness, Marital Relationships, and Parental Drinking to Predict Academic Achievement

Variable	B	SE	Significance[a]	Wald statistic	Exp(B)	$\chi 2(17)$
Income Per Capita	.06	.02	.01**	6.61	1.06	42.74***
Father Age	-.03	.44	.52	.41	.97	
Mother Age	.05	.06	.39	.73	1.05	
Target Sex	-.91	.27	.01**	11.79	.40	
Father Religiosity	-.05	.18	.80	.06	.96	
Mother Religiosity	-.03	.22	.89	.02	.97	
Target Religiosity	-.08	.17	.62	.25	.92	
Mother Closeness	.02	.25	.95	.01	1.02	
Father Closeness	.11	.23	.65	.21	1.11	
Father Marital Happiness	.22	.13	.07	3.22	1.25	
Father Marital Satisfaction	.00	.19	.99	.00	1.00	
Mother Marital Happiness	.13	.16	.41	.69	1.14	
Mother Marital Satisfaction	.01	.22	.96	.01	1.01	
Father Total Days	-.07	.04	.13	2.26	.94	
Mother Total Days	-.12	.09	.22	1.53	.89	
Father Total Drinks	.02	.02	.17	1.89	1.02	
Mother Total Drinks	.06	.04	.10	2.67	1.06	

Note: Target sex indicates female (0) and male (1). B = coefficient; SE = standard error; Exp(B) = odds ratio.
**$p < .01$. ***$p < .001$

Within predictor block four (see Table 10), income per capita was significant, with a similar odds ratio to previous predictor block at 1.06. Target sex was also significant, with an expected odds ratio of .40. These results indicate that an increase in these variables (if target sex is female) increases the likelihood of adolescent academic achievement. Father and mother total days drinking did not have a significant relationship with achievement, and results indicate that as total days increase, a decrease in achievement is expected. Furthermore, total drinks for fathers was not a significant relationship with achievement, and an increase in total drinks for fathers indicates an increase in achievement. However, the results for mother total drinks is a trend within these analyses ($p < .10$), and would indicate that as mothers drink more total drinks over the month, adolescents are more likely to achieve. In general, these analyses focusing on parental alcohol use did not meet theoretical expectations of the study. It was expected that alcohol use would have a negative relationship with adolescent academic achievement.

Research Question Two Results

Research question two focused on how family cohesion mediates the relationship between parental alcohol use and adolescent academic achievement, if relevant. The researcher planned that three multiple regression analyses would test the hypothesis that family cohesion mediates the relationship between parental alcohol use and childhood academic achievement. However, if through the first research question the researcher found that family cohesion did not have a significant effect on adolescent academic achievement, the researcher was open to examining the effects of other variables within the family relationship predictor group (marital satisfaction or happiness). Through this regression, the effect of family cohesion (or another family relationship indicator if necessary) on the

hypothesized negative link between parental alcohol use and childhood academic achievement was evaluated. That is, the goal of the analysis was to examine how the relationship between the dependent variable (adolescent academic achievement) and the independent variable (parental alcohol use) was influenced by a mediating variable (family cohesion).

To answer research question two, three regressions were proposed to be performed to test three relationships. The first relationship was between parental alcohol use and adolescent academic achievement. The researcher was interested in knowing if there was a relationship, the strength of this relationship, and the direction of this relationship (positive or negative). Next, the researcher wanted to know the relationship between parental alcohol use and family cohesion (if relevant, if not, another family interaction) is included. And finally, the researcher wanted to know the relationship between all variables within the predictor blocks (parental drinking, family characteristics, and family relationships) and adolescent academic achievement. Table 11 illustrates the results from the first analyses: the relationship between parental alcohol use and adolescent academic achievement, as seen through a linear regression.

Within this first analysis, it was found that parental alcohol use did not have a significant effect on dichotomized adolescent academic achievement (indicated by adolescent GPA), $p < .05$, with $R^2 = .03$, and that the significance did not differ when GPA was continuous. This, in general, does not differ from the results found within the logistic regression analyses reported earlier. However, these results were overall not expected by the researcher, and changed plans for further analyses. More specifically, analysis two focusing

on how to mediate this relationship was not needed—there was no relationship to mediate. See Table 11 for these results.

Table 11

Linear Regression Analysis Summary for Parental Alcohol Use Predicting Adolescent Academic Achievement

Variable	B	SE	Beta	Significance
Mother Days Drinking	-.01	.02	-.15	.36
Father Days Drinking	-.01	.01	-.22	.14
Mother Total Drinks	.01	.01	.26	.11
Father Total Drinks	.01	.01	.21	.15
$R^2 = .03$*				
$F = 2.15^{ns}$				

Note: B = coefficient; SE = standard error.
*$p < .05$.
^{ns} = $p > .05$.

However, it was still imperative to understand how other variables other than parental alcohol use can impact adolescent academic achievement. That is, the researcher still found it important to investigate what the linear relationship was between variables in the family relationships and family characteristics block and adolescent academic achievement. See Table 12 for the regression analysis of all family variables on dichotomized adolescent academic achievement.

Table 12

Linear Regression Analysis Summary for Family Variables Predicting Adolescent Academic Achievement

Variable	B	SE	Beta	Significance
Income Per Capita	.01	.01	.16	.01**
Father Religiosity	-.01	.03	-.01	.85
Mother Religiosity	-.01	.04	-.02	.76
Target Religiosity	-.02	.03	-.03	.61
Mother Closeness	-.01	.05	-.01	.92
Father Closeness	.03	.04	.05	.46
Father Marital Happiness	.05	.03	.13	.04*
Mother Marital Happiness	.02	.03	.06	.47
Father Marital Satisfaction	-.01	.04	-.01	.93
Mother Marital Satisfaction	.01	.04	.01	.86
Father Total Drinks	.01	.01	.21	.16
Mother Total Drinks	.01	.01	.22	.18
Father Total Days Drinking	-.01	.01	-.21	.16
Mother Total Days Drinking	-.01	.02	-.13	.44
R^2 = .08*				
F = 1.99*				

Note: B = coefficient; SE = standard error.
*p < .05. **p < .01.

Follow-up Analyses

Considering the unexpected results for the main research questions and hypotheses for this study, the researcher decided to complete post hoc analyses to discover any further relationships that could help explain the above results. It was expected by the researcher that there would be a negative link between parental alcohol use and achievement (greater drinking, less achievement), and that family cohesion would mediate this relationship. Further analysis was completed to investigate why the expected results were not observed. First, the researcher wanted to discover the different combinations of drinking and non-drinking demonstrated by parents. Table 13 depicts the prevalence of each spousal combination (e.g., mother drinking, father not drinking) with the achievement of adolescents. "Drinking" status was determined by the screener question, "In the past month, have you had any alcoholic drinks, such as beer, wine, liquor, etc.?", while "achievement" was determined through dichotomized GPA (see Table 13).

Table 13

Prevalence of Four Combinations of Parental Drinking Adolescent Academic Achievement (N = 330 couples)

Combination	Not Achieving N = 98 (frequency)	Achieving N = 232 (frequency)	$\chi 2$	Significance
Both Drinking	39	103	4.22	.24
Father Drinking, Mother Not Drinking	23	38		
Mother Drinking, Father Not Drinking	5	23		
Neither Drinking	31	68		

Note: Not Achieving = GPA below 3.00; Achieving = GPA above 3.00; $\chi 2$ = Pearson Chi-Square.

The Chi-square analysis indicated that among the non-achieving groups, two parental drinking categories emerged as the most frequent, both parents were drinking (N = 39), and neither parent reported drinking (N = 31). The pattern emerged for the achieving group that most were achieving while both parents were drinking (N = 103), and that this frequency of participants was more than those achieving while both parents were not drinking (N = 68). The researcher was expecting that more adolescents would achieve while both parents were not drinking, and that less adolescents would achieve while both parents were drinking.

Additionally, within this table, eight categories emerged in relation to parental drinking and adolescent academic achievement. These eight categories include: (1) adolescent achievement and both parents drinking, (2) adolescent non-achievement and both parents drinking, (3) adolescent non-achievement and only father drinking, (4) adolescent achievement and only father drinking, (5) adolescent non-achievement and only mother drinking, (6) adolescent achievement and only mother drinking (7) adolescent non-achievement and neither parent drinking, and (8) adolescent achievement and neither parent drinking.

Due to these results, the researcher was interested in what factors within the family may have contributed the lack of a significant relationship between parental alcohol use, family cohesion, and adolescent academic achievement. Descriptive analyses were conducted to look at the averages of total drinks, total days drinking, mother/father happiness/satisfaction, closeness, and income per capita within eight created categories described below. The researcher wanted to investigate what family characteristics could be observed within each of the eight categories to help explain what could contribute to an insignificant relationship between parental alcohol use and achievement, and why most

adolescents were achieving while both parents were drinking. See Table 14 for average of mother/father total drinks, mother/father total days drinking, mother/father happiness, mother/father satisfaction, mother/father closeness, and income within the eight described categories.

Of the eight created categories, the researcher was particularly interested in categories one and eight: what could contribute to these results? It was initially expected that group one would have the least amount of participants and group eight would have the most participants based on theoretical predictions. However, results indicated that group one had the most participants with N = 103 and group eight had less participants with N = 68. Therefore, the below results within Table 14 were needed to investigate what factors could be contributing to these unexpected numbers.

From the results in Table 14, it would appear that there were not significant differences seen between the category one and category eight. Both groups had similar drinking scores in relation to both total drinks over the month and total days drinking over the month, both had relatively happy and satisfied mothers and fathers, had similar closeness scores (as perceived by the target adolescent), and the only discernible difference could be seen in income per capita. Group one had a higher income (by about $3,000) than group eight. Overall, this analysis was still leaving the researcher with questions to answer.

Table 14

Description of Family Factors within Eight Family Categories of Drinking and Achievement

Category	Category Description	Mother and Father Mean Drinks[a]	Mother and Father Mean Days Drinking[b]	Mother and Father Mean Happiness	Mother and Father Mean Satisfaction	Mother and Father Mean Closeness[c]	Mean Income Per Capita
1	Achieving and both drinking	22.59	8.15	3.69	2.00	3.94	$11,700
2	Not achieving and both drinking achieving	18.68	8.24	3.56	2.12	3.84	$9,183
3	Not achieving and father drinking	5.63	2.11	3.31	2.33	3.85	$4,919
4	Achieving and father drinking	9.38	3.96	3.66	1.99	3.94	$9,247
5	Not achieving and mother drinking	2.40	1.20	2.90	2.70	3.93	$4,955
6	Achieving and mother drinking	3.31	.94	4.02	1.81	3.93	$9,698
7	Not achieving and neither drinking	0	0	3.27	2.11	3.90	$6, 246
8	Achieving and neither drinking	0	0	3.64	2.07	3.94	$8,184

[a]Indicates the average of both mother and father drinking over a month. [b]Represents the average of both mother and father days drinking over a month. [c]Closeness = target-reported closeness to mother and father.

Next, the researcher was interested in how the means of category one (103 achievers with both parents drinking) and category eight (68 achievers with neither parent drinking) differed in relation to multiple family factors to further explain why an association was not observed between parental alcohol use and adolescent achievement, as well as why the highest number of participants was observed in category one as opposed to category eight. A series of *t*-test analyses was conducted to examine this question. See Table 15 for the results.

Table 15

Exploration of Family Factor Differences among Families Who Varied in Parental Drinking

Family Characteristic	Equal Variances t	Significance
Mother Closeness	.31	.75
Father Closeness	.33	.74
Father Marital Happiness	.54	.59
Father Marital Satisfaction	.04	.97
Mother Marital Happiness	1.32	.19
Mother Marital Satisfaction	1.08	.28

Note: Levene's test for equality indicated that the variances do not differ significantly from one another ($p > .05$). Two family groups were compared, category with both parents drinking and adolescent achievement; N = 103, and category eight with both parents not drinking and adolescent achievement; N = 68.

The results from the *t*-test indicated that the means did not differ significantly at the $p < .05$ level between category one and category eight in relation to mother closeness, father closeness, father marital happiness, father marital satisfaction, mother marital happiness, and mother marital satisfaction. Therefore, the researcher can conclude that no significant difference exists between category one and category eight in relation to these variables.

CHAPTER 5. DISCUSSION

Considering that one in four children under the age of 18 years lives in a house in which alcohol use is present, research studying the effects of substance use on family members is imperative (Schroeder & Kelley, 2008). From a family systems approach, it is clear that family members affect one another's functioning in mutual ways. Therefore, the current study aimed to discover what impact parental drinking can have on adolescents in the family, specifically related to their ability to achieve academically. Overall, the researcher aimed to answer two research questions and posed two hypotheses. The first research question asked: What familial predictors affect adolescent academic achievement negatively or positively? It was hypothesized that parental alcohol use would have a negative impact on achievement. In contrast, other family factors such as higher family cohesion, higher marital happiness and satisfaction, and higher religiosity were expected to positively affect adolescent academic achievement. The second research question was: Is the potential link between parental alcohol use and adolescent academic achievement mediated by family cohesion? It was hypothesized that family cohesion would lessen the association between parental alcohol use and adolescent academic achievement.

A correlation matrix examining the relationship between the independent variables and the dependent variable was created, and the results indicated that increases in mother days drinking were associated with increases in GPA (an indicator of adolescent academic achievement within this current study). There was also a significant relationship between father reported marital happiness and GPA, indicating that families in which fathers reported greater marital happiness were associated with greater adolescent academic achievement. Additionally, a significant relationship was found between mother reported martial happiness

and GPA, and between income per capita and GPA, showing that greater mother reported happiness and income per capita were associated with greater adolescent academic achievement.

Research Question One Discussion

For research question one, a logistic regression analysis was conducted to examine the utility of family demographic information in predicting a dichotomous GPA outcome (achieving and not achieving). Within predictor block one, income per capita had a significant relationship with academic achievement. Furthermore, the odds ratio of income per capita would suggest that as income per capita increases, adolescent GPA would increase by 1.10 times. Therefore, it would appear that income positively influences an adolescent's ability to achieve. Additionally, the odds ratio between target sex and academic achievement would indicate that if the target is female, they are more likely to academically achieve than if they are male. However, mother and father age were not significant within this block, and did not add to the model overall.

In predictor block two, income and target sex had a similar odds ratio result as the first predictor block. That is, an increase in income per capita results in a 1.07 times more likely ability to achieve, and if the target is male less likely to achieve than if female. Father age, mother age, and familial religiosity (mother, father and target religiosity) were not statistically significant within this block, and did not add to the model.

Within predictor block three, income per capita resulted in similar findings, with a significant relationship with adolescent academic achievement and an odds ratio of 1.06. This indicates that as income per capita increases, adolescent achievement is 1.06 times more likely. Target sex also had a similar odds ratio, with the result indicating that if a target is

female they are more likely to succeed than if they are male. Furthermore, a trend was seen within the data in that a marginal significance exists between father marital happiness and adolescent academic achievement, which resulted in an odds ratio that would indicate that as father marital happiness increases by one unit, adolescent achievement becomes 1.25 times more likely. Father age, mother age, familial religiosity, mother and father closeness, father marital satisfaction, and mother marital happiness and satisfaction did not have statistical significance within this block and did not add to the model.

Lastly, in predictor block four, a similar outcome was seen in income per capita, target sex, and father marital happiness. Adolescents are 1.06 times more likely to succeed if income per capita increases, more likely to achieve if the target is female than if male, and 1.25 times more likely to succeed if father marital happiness is greater. No other variables were significant within this block, and did not to the model. However, the variable of particular interest to the researcher of parental drinking when added to the block resulted in an odds ratio that indicated that as mothers and fathers drink more days, children become less likely to succeed, and that as parents drink more drinks during the month, children become more likely to succeed. More specifically, as fathers drink more days during the month, children are .94 times less likely to achieve, and as mothers drink more days during the month, children are .89 times less likely to achieve. Furthermore, as mothers and fathers increase their drinking, children are 1.06 and 1.02 times more likely to succeed, respectively.

Overall, the findings from this first analysis were unexpected, and debunked many of the hypotheses that the researcher had for research question one. It was expected that alcohol use would have only a negative association with academic achievement, but these results suggest that parental use of alcohol was *positively* associated with an adolescent's ability to

achieve when it came to mother and father total days drinking. Furthermore, it would appear that income per capita, mother age, mother closeness, father closeness, father marital happiness, father marital satisfaction, mother marital happiness, mother marital satisfaction have a positive influence on adolescent academic achievement. More specifically, as these variables increase by one unit, the likelihood of an adolescent achieving also increases. These results were expected by the researcher, but it was not expected that religiosity would have a negative impact on adolescent academic achievement.

Research Question Two Discussion

For research question two, two multiple regression analyses were used to test the relationship between parental alcohol use and academic achievement and the relationship between all variables within the predictor blocks and academic achievement. Within the first analysis, no significant relationship was found between parental drinking and an adolescent's ability to achieve, which was expected after previous logistic regression analyses. Only 2.6% of the explained variance was due to the analyzed variables and not to external factors. Due to these results, there was no need test for medication in the relationship between alcohol use and achievement, since no significant relationship was found, there was no need for mediation between the two variables.

Analysis two showed that a significant relationship exists between family income per capita and GPA, as well as a relationship between father marital happiness and GPA. The R^2 did indicate that 8.1% of the explained variance was accounted for by the analyzed variables and not external factors. In summary, these linear regression analyses indicated that parental alcohol use does not have a significant impact on an adolescent's academic achievement, and

that income per capita and father marital happiness did within this sample. Overall, the analyses for this research's two questions were unexpected.

Follow-up Analyses

These results left the researcher wondering what is contributing to these relationships, since it was expected that parental alcohol use would have a negative impact on academic achievement, and that there would be a need to mediate this relationship with family cohesion. However, there was no significant relationship between alcohol use and achievement found within the regression analysis, which indicated no need for mediation by family cohesion. As a result, the researcher sought to explore what resiliency factors may be present within the different types of families with combinations of parental drinking and adolescent achievement. First, the researcher looked at the frequencies of different combinations of parental drinking (both drinking, neither drinking, just mother drinking, and just father drinking). This analysis indicated that within the sample, the category of both parents drinking had the highest prevalence, followed by neither drinking, just father drinking, and then just mother drinking.

Further analysis of these four categories utilized a crosstabs with the dichotomized GPA, and yielded some interesting results. Eight categories reflecting parental drinking by achievement status (i.e., both drinking with and without achievement, mother drinking with and without achievement, father drinking with and without achieving, and neither drinking with or without achievement) were created. Frequencies of these categories within this sample indicate that most children were achieving while both parents were drinking (N = 103). Interestingly, it was also found that 68 children were achieving with neither parent drinking. Overall, this analysis displayed results surprising to the researcher, considering the

research questions and hypotheses for this project indicated the opposite. In other words, it was expected that most children would succeed while neither parent was drinking. However, this did help alleviate some confusion with the above results—the researcher was able to see why drinking would not have an impact on achievement. It would appear that adolescents were able to succeed with both parents drinking.

To follow-up on this hypothesis, an analysis focusing on the averages of mother/father total drinks, mother/father total days drinking, mother/father happiness, mother/father satisfaction, mother/father closeness, and income within the eight described categories resulted in some revealing information for the researcher. It was found within category one (both parents drinking and adolescent achievement) and eight (neither parent drinking and adolescent achievement) that mothers and fathers were seemingly happy within their marital relationship, that there was lower closeness within these families (as reported by the target adolescent), that mothers were drinking about 17 drinks/month and five days/month, that fathers were drinking about 27 drinks/month and about 10 days/month, and that category one had a higher income per capita than category eight ($11,700 compared to $8,184). This led to more questions by the researcher: Is income per capita a significant mediator between achievement and alcohol use? Are parents underreporting their drinking habits due to desirability? Should the researcher have analyzed alcohol differently so that only “high” drinkers were used? Does marital happiness also serve as buffer? What kinds of parenting styles are prevalent within category one and eight that would lead to these results? Would less happiness lead to a decrease in GPA? Would less happiness lead to more drinking in families, which would then lead to less academic achievement? These questions and future directions will be discussed more in the future directions section.

Due to the particular interest in categories one and eight within the crosstabs, the researcher was interested in how the means between these groups differ in relation to closeness, marital satisfaction, marital happiness, and GPA. This *t*-test analysis showed that there was no statistically significant difference between the two conditions tested. That is, there is no difference between category one and category eight when it comes to the closeness, marital satisfaction, marital happiness, and adolescent academic achievement. This suggests that the participants within these two groups were similar, and that analyses may not find significant differences.

Limitations

Within this study, there are limitations that should be addressed. On main limitation is the deletion of families or variables within the main data set. Overall, this process can limit the size of a data set and reduce the credibility of the power of generalizability of the data set. Even though it is generally recommended that the entire data set be used, the researcher found that the deleted families did not vary significantly from the included families, and deleting the non-intact families was justifiable based on the research questions being investigated. Additionally, the replacing of missing values is not exact, and may have resulted in incorrect values being replaced. Furthermore, a limitation can be seen in the phrasing of certain questions within the original assessments. For instance, within the parental alcohol use scale, the phrasing of "how many days of the last month did you have *only* one drink" may infer to the reader that having one drink is superior to having more than one drink a day. This may sway the participant to answer with fewer drinks per day, which could negatively affect the integrity of the sample. A limitation can also be seen in a lack

using of a “baseline” wave within the data analyzed for the present study; the researcher did not include behaviors that occurred within the years before Wave C.

Another limitation is the potential negative impact that measures assessing parental alcohol use can have on response rates of participants (Stockwell et al., 2004). This trend could have negatively impacted the response rate of participants in relation to answering questions truthfully about their alcohol consumption. As indicated by the analyses above, it would appear that parents, overall, were not drinking much within this sample, further indicating a problem with reliability of participant report of alcohol use. However, there were parents who responded to the questionnaires who stated that they were drinking quite a lot, and quite frequently. Therefore, another limitation could be seen in the way parental alcohol use was analyzed within this research. The use of the entire spectrum of alcohol use (from no use to heavy using) could have negatively impacted the results—the researcher could have lost some power within these analyses by not looking at parents who were no-to-moderate drinkers compared with those who were drinking heavily. This will be discussed further within “future directions”.

Furthermore, a limitation within the current study is a potential loss of analytical power due to the categorization of adolescent achievement. Within this study, adolescent achievement was operationalized through GPA, and this variable was dichotomized into achieving (3.00 GPA and above) and not achieving (below a 3.00 GPA). When the researcher looked at the final distribution of those who were and who were not achieving, it was obvious that most adolescents within this data set were achieving. Overall, the dichotomous treatment of achievement may have negative impacted the outcomes of this study’s analyses. More specifically, it would be less likely to find that there was lower

achievement in relation to parental drinking when there was significantly more achievement than non-achievement in the overall sample. This problem could be addressed by using a different variable to measure achievement within the present data set or by using a different data set.

Additionally, the use of an older data set can be a limitation to a study 20 years later. Some would consider this data "out of date" and irrelevant to today's society. This could be due to changes within society in relation to gender roles (mothers may feel more comfortable reporting drinking today than in the early 1990s), how schools measures success, changes in school curriculum that help create "college readiness" for students, among many other societal changes.

Future Directions

There are many future directions spawning from this particular study. An area that the researcher could further investigate is the resiliency factors within the families that could have led to the results. What is causing the majority of adolescents within this study to achieve while both parents are drinking? What could explain why fewer adolescents achieve while both parents are not drinking than while parents are drinking? It would appear from the results that father marital happiness and income per capita seems to have a significant role in the relationship between parental alcohol use and adolescent academic achievement. Perhaps these are factors within the family that could mediate negative relationships between family members, and should be further studied. Would less marital happiness and income be associated with a decrease in achievement? Would this then be associated with a rise in drinking and perhaps a more significant relationship with achievement? What, in particular, is it about *father* marital happiness that is more significant than mother marital happiness in

relation to achievement? Prior research indicates that marital instability and unhappiness can negatively impact how well an adolescent achieves academically (Potter, 2012). Therefore, future research can focus on whether a father's marital unhappiness and instability has more of an effect than a mother's marital unhappiness and instability. These are questions that could be further investigated within this particular data set, as well as by other researchers who may have yielded similar results.

Another area of potential focus is how parenting styles can help explain the above results. According to Spera (2005), there are three main types of parenting styles that were identified by Baumrind: authoritative, authoritarian, and permissive. Authoritative parents are considered the "model" parenting style with high responsiveness to children, but also high demands (Spera). On the other hand, authoritarian parents are low on responsiveness and high on demands, while permissive parents are low on responsiveness and low on demands—these parenting styles are not ideal (Spera). Many studies have indicated that parental responsiveness and demandingness (an authoritative parent) have a pivotal role in how well adolescents are able to achieve academically. Mostly, this is due to an adolescent's ability for self-regulation, which is a main factor in achieving in school (Abarm, Carter, & Winsler, 2009). This raises many questions. For instance, would father authoritarian parenting have more of a significant influence on adolescent academic achievement than mother authoritarian parenting? Would adolescents who achieve while both parents drink be experiencing authoritative parents? On the other hand, would adolescents who are not achieving while both parents are not drinking be experiencing authoritarian or permissive parents? These are questions that could be further explored to help explain the results.

Another area of further investigation within this data set and others would be to use different ways to analyze parental drinking. Within this study, parental alcohol use included the entire spectrum of potential use was used (from no drinking to heavy drinking), and this could have resulted in the loss of analytical power within this study's analyses due to using a lesser degree of drinking. Studies have stated that using, and not abusing, alcohol can significantly affect children (Zanati-Jeronymo & Carvalho, 2005). However, little literature focuses only on parental alcohol use (not abuse) and its effect on family members. Instead, there is a focus on heavy using and its impact on children or adolescents. For instance, van der Vorst, Engels, Meeus, and Dekovic (2006) measured both the frequency and *intensity* of parental alcohol use through assessing how often participants had drunk alcohol during the weekdays and weekends, and found significant impacts on adolescent's drinking behaviors. These researchers would have distinguished the difference between individuals who are light drinkers (i.e., those who may have a glass of wine during dinner), and those that are binge drinkers, an obvious difference for potential outcomes for adolescents.

Furthermore, parental drinking has been assessed through lifetime problems caused by drinking, an indication of alcoholism, and through the type of alcohol drank (Latendresse, Rose, Viken, Pulkkinen, Kaprio, & Dick, 2008). In fact, the Diagnostic Manual of Statistical Manual of Mental Disorders, fifth revision (DSM-IV) states that alcohol abuse occurs when there is "an inability to fulfill roles such as work or parenting roles, when there is dangerous use of alcohol in situations such as driving or operating machinery while intoxicated, legal problems associated with alcohol use, and social and interpersonal problems with loved ones due to alcohol use" (American Psychiatric Association, 2000, p. XXX). Therefore, future research could assess parental alcohol use differently, which may lead to different results

than those above. More specifically, by analyzing not only higher alcohol use, but also problems associated with use (an indicator or alcohol abuse), results may show that there is a significant relationship between parental drinking and adolescent academic achievement.

Summary

In conclusion, the researcher aimed to discover the relationship between the variables of parental alcohol use, family cohesion, and adolescent academic achievement, with the long-term goal of improving society's ability to help children achieve academically, as well as to improve society's families. Overall, much prior literature focused on these topics, but little to no extant literature focuses on all three variables, which warranted a study on how these three variables relate to one another. Through a Family Systems Theory perspective, a study was conducted using a secondary data set from the Iowa Youth and Family Project to determine these relationships and the extent of their correlations. Overall, the analyses focusing on the proposed research questions and hypotheses did not support what the researcher had expected. It was expected that parental alcohol use would have a significant relationship with adolescent academic achievement, this relationship would be negative, and that family cohesion could be an agent in alleviating this negative relationship. However, the results of these analyses did leave much room for further research to inquire as to why the above results were found. More specifically, future directions could focus on how income per capita and father marital happiness plays a role in how the above results were found—what more can be discovered for these variables? How can they be further used to help the adolescents of society achieve academically? Additionally, a focus on parenting styles and its effect on adolescent academic achievement as well as exploring alcohol use with high users is a possibility for researchers in the future.

Even though the results of these analyses were unexpected, there are still implications for the human services field. For instance, family therapists could intervene within the marital subsystem to help adolescents academically achieve, an idea that can be deducted from the above results that father marital happiness has an effect on adolescent academic achievement. However, as mentioned previously, more research would need to be conducted to find if father marital happiness is more significant than mother marital happiness. In other words, is father marital happiness a “barometer” of family functioning? Furthermore, social workers could aid families by helping them identify ways to increase their income. As indicated above, income per capita had a significant effect on an adolescent’s academic achievement. Therefore, individuals within the human sciences field could aid families in finding resources to help increase the family’s income so as to aid adolescents in achieving academically.

Appendix A

Institutional Review Board Approval

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Resear
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 8/25/2011

To: Krystyna Abbott
4380 Palmer Bldg

CC: Dr. Jennifer Margrett
4380 Palmer
Dr. Janet Nieuwsma Melby
2625 N Loop Dr

From: Office for Responsible Research

Title: The Influence of Parental Substance Use and Family Cohesion on Children's Academic Achievement

The Co-Chair of the ISU Institutional Review Board (IRB) has reviewed the project noted above and determined that the project:

☐ Does not meet the definition of research according to federal regulations.

☒ Is research that does not involve human subjects according to federal regulations.

Accordingly, this project does not need IRB approval and you may proceed at any time. We do, however, urge you to protect the rights of your participants in the same ways you would if IRB approval were required. For example, best practices include informing participants that involvement in the project is voluntary and maintaining confidentiality as appropriate.

Please also know that **any change** to this project must be communicated to the IRB to determine if the project has become research with human subjects requiring IRB approval.

Appendix B

Parental Alcohol Use Measure

Question 55. In the past month, have you had any alcoholic drinks, such as beer, wine, liquor, etc.?

1. YES

2. NO

9. Missing

Question 55a. How many days in this past month did you have four or more alcoholic drinks

xx. Number of days

31. Every day of month/daily

99. Missing

FF. Inap, 2 in 55

Question 55b. How many days this past month did you have only two or three alcoholic drinks?

xx. Number of days

31. Every day of month/daily

99. Missing

FF. Inap, 2 in 55

Question 55c. How many days this past month did you have only one alcoholic drink?

xx. Number of days

31. Every day of month/daily

99. Missing

FF. Inap, 2 in 55

Appendix C

Variable Statistics for Parental Alcohol Use

Variable Statistics for Individual Questions within Parental Substance Use Measure

Variables	Mean	Standard Deviation	Range
Parental Alcohol Use (IV)			
Father			
Question 55	1.38	0.49	1-2
Question 55a	1.49	4.09	0-30
Question 55b	2.12	4.44	0-31
Question 55c	2.23	4.37	0-30
Mother			
Question 55	1.48	0.50	1-2
Question 55a	0.41	1.57	0-20
Question 55b	0.86	2.59	0-28
Question 55c	1.31	3.03	0-30

Appendix D

Adolescent GPA Measure

Question 15. Which of the following is the closest to your grade point average? Circle the appropriate letter.

00. F
01. D-
02. D
03. D+
04. C-
05. C
06. C+
07. B-
08. B
09. B+
10. A-
11. A
12. Missing
99. Missing

Appendix E

Variable Statistics for Adolescent Grade Point Average

Descriptive Statistics for Item Assessing Continuous Adolescent Achievement

Variable	Mean	Standard Deviation	Range
Question 12	8.33	1.99	0-11[a]

[a]Grade F (0.00) to grade A (11.00).

Descriptive Statistics for Item Assessing Dichotomized Adolescent Achievement

Variable	Frequency	Percent	Range
Not Achieving (0)	98	29.7	0-1[a]
Achieving (1)	232	70.3	

[a]0 indicates adolescent non-achieving (below 3.00 grade point average), 1 indicates adolescent achievement (above 3.00 grade point average).

Appendix F
Family Cohesion Measure

Question 12a. How often does your father (mother's husband) do each of the following things?

1. Always
2. Often
3. Sometimes
4. Rarely
5. Never
9. Missing

a. Make too many demands on you
b. Make you feel tense while you are around him
c. Make you feel he is there for you when you really need him (reverse scored)
d. Keep his promises to you (reverse scored)
e. Understand the way you feel about thing (reverse scored)
f. Make you feel you shouldn't tell him about things because he might be upset
g. Act as if he is the only important person in the family
h. Show concern for your feelings and problems (reverse scored)
i. Insist on having his own way
j. Expect more from you than he is willing to give
k. Make you feel he really cares about you (reverse scored)

Question 12b. How often does your Mother (father's wife) do each of the following things?

1. Often
2. Sometimes
3. Rarely
4. Never
9. Missing

a. Make too many demands on you
b. Make you feel tense while you are around her
c. Make you feel she is there for you when you really need her (reverse scored)
d. Keep her promises to you (reverse scored)
e. Understand the way you feel about things (reverse scored)
f. Make you feel you shouldn't tell her about things because she might be upset
g. Act as if she is the only important person in the family
h. Show concern for your feelings and problems (reverse scored)
i. Insist on having her own way (reverse scored)
j. Expect more from you than she is willing to give (reverse scored)
k. Make you feel she really cares about you

Appendix G

Variable Statistics for Family Cohesion

Descriptive Statistics for Item Assessing Target Closeness to Father/Mother

Variables	Mean	Standard Deviation	Range
Family Cohesion (IV)			
Father			
Question 12a			
a	3.89	0.87	1-5
b	3.89	0.93	
c	3.39	1.03	
d	4.04	0.81	
e	3.54	0.99	
f	3.56	1.06	
g	4.29	0.89	
h	3.77	0.95	
i	3.99	1.04	
j	4.12	0.93	
k	3.95	0.98	
Mother			
Question 12b			
a	3.58	0.85	1-5
b	3.84	0.92	
c	4.05	0.88	
d	4.03	0.73	
e	3.55	0.92	
f	3.51	0.98	
g	4.19	0.94	
h	4.11	0.83	
i	3.94	0.95	
j	4.08	0.90	
k	4.27	0.85	

Appendix H

Measure for Familial Religiosity

Father, Mother, Target Measure

Question 40. In general, how important are religious or spiritual beliefs in your day-to-day life?

1. Very important
2. Fairly important
3. Not too important
4. Not at all important

Appendix I

Variable Statistics for Familial Religiosity

Descriptive Statistics for Item Religiosity

Variables	Mean	Standard Deviation	Range
Father Religiosity	1.85	0.86	1-4
Mother Religiosity	1.48	0.68	1-4
Target Religiosity	2.04	0.85	1-4

Appendix J

Marital Happiness and Well-Being

Mother and Father Marital Happiness Measure

Question 31. How happy are you, all things considered, with your marital relationship (this relationship)?

0. Extremely unhappy
1. Very unhappy
2. Unhappy
3. Happy
4. Very happy
5. Extremely happy

Mother and Father Marital Satisfaction Measure

Question 32. All in all, how satisfied are you with your marriage (current relationship with your former spouse)? (reverse scored)

1. Completely satisfied
2. Very satisfied
3. Somewhat satisfied
4. Not very satisfied
5. Not at all satisfied

Appendix K

Variable Statistics for Marital Happiness and Well-Being

Variable Statistics for Mother and Father Marital Happiness and Satisfaction

Variables	Mean	Standard Deviation	Range
Father Marital Happiness	3.59	1.19	0-5
Mother Marital Happiness	3.62	1.09	0-5
Father Marital Satisfaction	2.02	.81	1-5
Mother Marital Satisfaction	2.09	.82	1-5

Appendix L

Variable Statistics for Income Per Capita

Variable Statistics for Income Per Capita

Variable	Mean	Standard Deviation	Range
Income Per Capita	$9,170.01	$7,749.60	From -$39,240.00 to $44,957.25

REFERENCES CITED

Abarm B., Carter, K.L., & Winsler, A. (2009). The effects of maternal parenting style and religious commitment on self-regulation, academic achievement, and risk behavior among African-American parochial college students. *Journal of Adolescence, 23*, 259-273.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Andreias, L., Borawski, E., Schluchter, M., Taylor, G., Klein, N., & Hack, M. (2010). Neighborhood influences on the academic achievement of extremely low birth weight children. *Journal of Pediatric Psychology, 35*(3), 275-283.

Castelli, D.M., Hillman, C.H., Buck, S.M., & Erwin, H.E. (2007). Physical fitness and academic achievement in third- and fifth-grade students. *Journal of Sport & Exercise Psychology, 2*, 239-252.

Conger, R. D. (1988). *Substance Use Scale*. Developed for the Iowa Youth and Families Project. *Iowa Youth and Families Project Preliminary Technical Report*.

Conger, R.D. (1993). *Religiosity Scale*. Developed for Iowa Youth and Families Project. *Iowa Youth and Families Project Preliminary Technical Report*.

Conger, R.D. (2004). "Iowa Youth and Families Project, 1989-2000". Retrieved July 3, 2011, from http://hdl.handle.net/1902.1/10765 UNF:3:vk6hF0/0Ng1Qb6DMKn5mFA== Murray

Conger, R. D., Ebert-Wallace, L., Sun, Y., Simons, R. L., McLoyd, V. C., & Brody, G. H. (2002). Economic pressure in African American families: A replication and extension of the family stress model. *Developmental Psychology, 38,* 179-193.

Conger, R. D., & Elder, G. H., Jr. (1994). *Families in troubled times: Adapting to change in rural America*. Hillsdale, NJ: Aldine.

Conger, R.D. & Elder, G.H. Jr. (1994). *Families in troubled times*. Walter de Gruvter, Inc.: New York.

Conger, R. D., Ge, X., Elder, G. H., Jr., Lorenz, F. O., & Simons, R. L. (1994). Economic stress, coercive family process and developmental problems of adolescents [Special issue on children and poverty]. *Child Development,* 65, 541-561.

Conger, R.D., McLoyd, V.C., Wallace, L.E., Sun, Y., Simons, R.L., & Brody, G.H. (2002). Economic pressure in African American families: A replication and extension of the family stress model. *Development Psychology, 38*(2), 179-193.

Conner, J.J. & Rueter, M.A. (2006). Parent-child relationships as systems of support or risk for adolescent suicidality. *Journal of Family Psychology, 20*(1), 143-155.

Conners, N.A., Bradley, R.H., Mansell, L.W., Liu, J.Y., Roberts, T.J., Burgdorg, K., & Herrell, J.M. (2003). Children of mothers with serious substance abuse problems: An accumulation of risks. *The American Journal of Drug and Alcohol Abuse, 29*(4), 743-758.

Diaz, R., Gual, A., Garcia, M., Arnau, J., Pascual, F., Canuelo, B., Rubio, G., de Dios, Y., Fernandez-Eire, C.M., Valdes, R., & Garbayo, I. (2008). Children of alcoholics in Spain: From risk to pathology. *Social Psychiatry, 43,* 1-10.

Demi, F. & Lewis, K. (2010). White working class achievement: An ethnographic study of barriers to learning in schools. *Educational Studies, 37*(3), 245-264.

Family Transitions Project. (2011). *Family Transitions Project history and archives*. Retrieved June 23, 2011, from https://transitionsproject.ucdavis.edu/history.htm

Family Transitions Project. (2011). *Family Transitions Project Study participants*. Retrieved July 3, 2011, from https://transitionsproject.ucdavis.edu/participants.htm

Fruh, S.M., Fulkerson, J.A., Kendrick, L.J., & Clanton, C. (2011). The surprising benefits of the family meal. *Academic College of Nurse Practitioners, 7*(1), 18-22.

Ge, X., Conger, R.D., Lorenz, F.O., & Simons, R.L. (1994). Parents' stressful life events and adolescent depressed mood. *Journal of Health and Social Behavior, 35*(1), 28-44.

Ghazarian, S.R. & Buehler, C. (2008). Interpersonal conflict and academic achievement: An examination of mediating and moderating factors. *Journal of Youth and Adolescence, 39*(1), 23-35.

James, D.W., Jurich, S., & Estes, S. (2001). *Raising minority academic achievement: A compendium of education programs and practices*. Washington DC: American Youth Policy Forum.

Jeynes, W.H. (2011). The relationship between parental involvement and urban secondary school academic achievement. A meta-analysis. *Urban Education, 42*(1), 82-110.

Kelley, M.L., Klostermann, K. Doane, A.N., Mignone, T., Lam, W.K.K, Fals-Stewart, W., & Padilla, M.A. (2010). The case for examining and treating the combined effects of parental drug use and interparental violence on children in their homes. *Aggression and Violent Behavior, 15,* 76-82.

Kessler, R. (1989). Personal communication. Developed for the Iowa youth and families project.

King, P.E. & Furrow, J.L. (2004). Religion as a resource for positive youth development: Religion, social capital, and moral outcomes. *Developmental Psychology, 4*(5), 703-713.

King, V. & Sobolewski, J.M. (2006). Nonresident fathers' contributions to adolescent well-being. *Journal of Family Issues, 68*(3), 537-557.

King, V., Stamps, K.C., & Hawkins, D.N. (2010). Adolescents with two nonresident biological parents: Living arrangements, parental involvement, and well-being. *Journal of Family Issues, 31* (1), 3-30.

Laidra, K., Pullmann, H., & Allik, J. (2007). Personality and intelligence as predictors of academic achievement: A cross-sectional study from elementary to secondary school. *Personality and Individual Differences, 42*, 441-451.

Lambie, G.W. & Sias, M.S. (2005). Children of alcoholics: Implications for professional school counseling. *Professional School Counseling, 8*(3), 266-273.

Latendresse, S.J., Rose, R.J., Viken, R.J., Pulkkinen, L., Kaprio, J., & Dick, D.M. (2008). Parenting mechanism in links between parents' and adolescents' alcohol use behaviors. *Alcoholism: Clinical and Experimental Research, 32*(2), 322-330.

Leidy, M. S., Guerra, N. G., & Toro, R. I. 2010. Positive parenting, family cohesion, and child social competence among immigrant Latino families. *Journal of Family Psychology, 24,* 252-260. doi: 10.1037/a0019407.

Magnuson, K. & Berger, L.M. (2009). Family structure states and transitions: Associations with children's wellbeing during middle childhood. *Journal of Marriage and Family, 71*(3), 575-591.

Mares, S.W., van der Vorst H., Engels, R., & Lichtwarck-Aschoff, A. (2011). Parental alcohol use, alcohol-related problems, and alcohol-specific attitudes, alcohol-specific communication, and adolescent excessive alcohol use and alcohol-related problems: An indirect path model. *Addictive Behaviors, 38,* 209-215.

McCullough, M.E., & Willoughby, B.L.B. (2009). Religion, self-regulation, and self-control: Associations, explanations, and implications. *Psychological Bulletin,* 1-25.

Melby, J.N. & Conger, R.D. (1996). Parental behaviors and adolescent academic performance: A longitudinal analysis. *Journal of Research on Adolescence, 6*(1), 113-137.

Melby, J.N., Conger, R.D., Fang, S., Wickrama, K.A.S., & Conger, K.J. (2008). Adolescent family experiences and educational attainment during early adulthood. *Developmental Psychology, 44*(6), 1519-1536.

Olmstead, S.B., McWey L.M., & Henderson, T. (2010). In the child's best interest: Terminating the rights of fathers with children in foster care. *Journal of Family Issues, 32* (1), 31-54.

Olson, D.H. & Gorall, D.M. (2003). Circumplex model of martial and family system. *Normal Processes, 3*, 514-547

Potter, D. (2010). Psychosocial well-being and the relationship between divorce and children's academic achievement. *Journal of Marriage and Family, 72*, 933-946.

Roderick, M., Nagaoka, J., & Coca, V. (2009). College readiness for all: The challenge for urban high schools. *The Future of Children, 19*(1), 185-210.

Rook, K.S. (1984). The negative side of social interaction: Impact on psychological well-being. *Journal of Personality and Social Psychology, 46*, 1097-1108

Schroeder, V.D. & Kelley, M.L. (2008). The influence of family factors on the executive functioning of adult children of alcoholics in college. *Family Relations, 5*, 404-414.

Sirin, S.R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research, 75*(3), 417-453.

Spera, C. (2005). A Review of the relationship among parenting practices, parenting styles, and adolescent school achievement. *Educational Psychology Review, 17*(3), 125-146.

SPSS for Windows, Rel. 11.0.1. 2001. Chicago: SPSS Inc.

Stockwell, T., Donath, S., Cooper-Stanbury, M., Chikritzhs, T., Catalano, P., & Mateo, C. (2004). Under-reporting of alcohol consumption in household surveys: A comparison of quantity, graduated-frequency and recent recall. *Addiction, 99*(8), 1024-33.

Sumari, M., Hussin, Z. & Siraj, S. (2010). Factors contributing to academic achievement and moral development: A qualitative study. *The International Journal of Research and Review*, *5*(2), 18-24.

Spilman, S. K., & Peng, L. (2009). *Critical Transitions Project G3 Technical Reports, F14 2007-2008.* Ames, IA: Family Transitions Project, Iowa State University.

Torvik, F.A., Rognmo, K., Ask, H., Roysamb, E., & Tams, K. (2011). Parental alcohol use and adolescent school adjustment in the general population: Results from the HUNT study. *BMC Public Health, 11*(706), 1-11.

Thomas, P.A., Krampe, E.M., & Newton, R.R., (2008). Father presence, family structure, and feelings of closeness to the father among adult African American children. *Journal of Black Studies*, *38*(4), 529-546.

van der Vorst, H., Engels, R.C.M.E., Meeus, W., & Dekovic, M. (2006). The impact of alcohol-specific rules, parental norms about early drinking and parental alcohol use on adolescents' drinking behavior. *Journal of Child Psychology and Psychiatry, 47*(12), 1299-1306.

White, J. M., & Klein, D. M. (2008). *Family theories* (3rd ed.). Thousand Oaks: Sage Productions.

Zanati-Jeronymo, V.D. & Carvalho, P.M.A. (2006). Self-concept, academic performance and behavioral evaluation of the children of alcoholic parents. *Revista Brasileria de Psiquiatria, 27*(3), 233-226.